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ABSTRACT

In order to establish a tertiary educational sector that is able to provide equal opportunities to all students, it is vital that institutions diversify curriculum delivery and course assessment strategies. Although it may appear impractical to develop a course that takes into consideration the various learning preferences of all individuals, there appears to be room for improvement, especially in the areas of clarifying course objectives and following through with appropriately inclusive assessment strategies. This paper summarizes the literature findings concerning the use of speeded examinations and their implications and explores issues in relation to granting extended time in examinations to students with disabilities. Also, the reasons why academics choose to use speeded examinations and their attitudes towards unspeeded examinations have been explored through a pilot study involving 1 to 2 faculty members from each of 16 disciplines. Results indicated that some academics were uncertain about what constitutes a disability and others were unsure about how to ensure that students had sufficient time to finish. Many believed that there is a significant relationship between speed and the quality of response. It is suggested that unspeeded examinations provide more equitable and practical alternatives to examinations taken under tight time constraints. (Contains 1 figure, 6 unnumbered tables, and 34 references.) (Author/SLD)

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UNSPEEDED EXAMINATIONS: AN EQUITABLE AND PRACTICAL METHOD OF ASSESSMENT

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In order to establish a tertiary sector that is able to provide equal opportunities to all students, it is vital that educational institutions diversify curriculum delivery and course assessment strategies. Although it may appear impractical to develop a course which takes into consideration the various learning preferences of all individuals, there appears to be room for improvement, especially in the areas of clarifying course objectives and following through with appropriately inclusive assessment strategies. This paper summarises the literature findings concerning the use of speeded examinations and their implications and explores issues in relation to granting extended time to students with disabilities in examinations. Also, the reasons why academics choose to use speeded examinations and their attitudes towards unspeeded examinations have been explored through a pilot study. The researchers discuss their findings and suggest that unspeeded examinations are a more equitable and practical alternative to examinations taken under tight time constraints.

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Introduction

The granting of extended time for examinations typically raises a number of issues for academics, students and disability liaison support personnel. Among these issues are a range of concerns some of which are valid and others which may not be valid. It is the aim of this paper to tease out the valid concerns from the invalid concerns and to suggest ways of reducing these and promoting equity for all students in relation to timing of examinations.

A review of relevant literature has indicated that the effects of speededness on test performance is an area within educational research which has received on-going attention. Studies which have investigated the impact of speed on test performance include the work of (Baxter,1941; Gulliksen,1950; Wesman, 1960; Reilly and Evans,1974; Davis,1988; Ragosta & Kaplan, 1986; Jolly, Johnson, Jones & Abalos, 1985; Lin, 1986; Davis, Kaiser & Boone, 1987; Davis, Kaiser, Boone & McGuire, 1988; Bennett, Rock & Kaplan, 1988; Willingham, Ragosta, Bennett, Braun, Rock & Powers, 1988; Munger and Loyd, 1991; Ragosta & Wendler, 1992; Weaver, 1993; Whiting, in press). Studies have addressed test validity and reliability, power versus speed, the influence of extraneous variables on test results, comparability of time-limits for disabled and non-disabled students and the benefits of additional time during examinations for students with disabilities. Although there is not total agreement amongst researchers, there is overwhelming evidence that suggests that if test fairness is a priority, additional time, if not the administration of unspeeded examinations, must be considered.

A number of researchers in this area have focussed on exploring the concepts of power versus speed. A pure *power test* is best described as an achievement test, that is, the test is a measure of a student's acquired knowledge and skills. Power tests are designed to ensure that sufficient time is allowed for most students to attempt all items, however, the items tend to be difficult (Sax, 1980). On the other hand, a pure *speed test* is a test with severe time constraints that is composed of items so easy that few errors are expected. Apart from this fundamental difference in what speed and power tests are measuring, Rindler (cited in Jolly, Johnson, Jones & Abalos 1985), concluded after an extensive review of the literature, that there is neither a strong nor consistent relationship between speed and power. Using carefully constructed instrumentation, Bloomers and Lindquist (cited in Jolly, Johnson, Jones & Abalos, 1985) found the correlation between speed and power in relation to comprehension to be .30. Also, Davidson and Carroll (cited in Jolly, Johnson, Jones & Abalos, 1985) presented evidence that speed scores were linearly independent of power scores.

As power and speed tests are measuring different factors and there appears to be little if any relationship between the two, it is necessary that examiners scrutinise the essence of what they are testing and question how much of an effect time constraints may have on test performance. One approach taken in the past by examiners investigating the influence of time constraints on test performance, is to measure completion rates. Swineford, (cited in Jolly, Johnson, Jones & Abalos 1985) considered a test to be unspeeded if virtually all subjects attempted 75 percent of the items and at least 80 percent respond to the last item. However, measuring completion rates will not necessarily indicate that an adequate amount of time has been available (Jolly , Johnson, Jones & Abalos,1985). The current researchers believe that having only 80 percent of examinees completing the last item still indicates that the test has far too heavy an emphasis on speed to be considered unspeeded. Jolly, Johnson, Jones & Abalos (1985) found that the speeded nature of a test may lead to the random guessing of answers which results in the masking of the actual number of students who adequately complete the examination (without random guessing), and consequently, scores are distorted.

Within the university setting, it is presumed that examiners are attempting to measure power (achievement). However, it is possible that a great deal of emphasis is still placed on speeded examinations with little or no thought given to the effects of examination speededness on the measurement of achievement. Myers (cited in Jolly, Johnson, Jones & Abalos), suggested that time limits are used to ensure financial viability of tests. Similarly, Munger and Loyd (1991) assert that time limits are imposed primarily for "administrative convenience " . Helmstadtler and Ortmeyer (cited in Jolly, Johnson & Abalos, 1985), suggest that to establish authenticity in the use of time limits in the examination situation, an evaluation of the examination or test should be conducted and include precise knowledge of the relative contributions of speed and power to test scores.

There has been much debate concerning the psychometric properties of tests or examinations which attempt to measure both speed and power factors (speed-power tests). More specifically, many researchers have reported that when scores on a time limited test designed to measure power (achievement), are contaminated by a speed component, that the tests construct validity is in doubt (Mayer cited in Lin, 1986 and Lord cited in Jolly, Johnson, Jones& Abalos, 1985) While there is some evidence that speeded examinations can increase reliability (Gulliksen cited in Lin, 1986; Cronbach cited in Lin, 1986) examiners need to be aware that reliability is only one significant contributing factor to overall test validity.

Bridges (1985) conducted a study aimed at resolving contradictions on the relationship between test-completion speed and performance. This researcher cites several others who investigated the relationship between order of completion and performance stating that:

> "....neither Burack or Ebel found any relationship between order (of completion) and examination scores."
>
> (cited in Bridges, 1985. p.32)

in the same review Bridges noted that Johnson found:

> "...students among the first to finish and those among the last to finish objective tests included both very high and very low scores, whereas the middle finishers obtained moderate scores."
>
> (cited in Bridges, 1985. p.32)

The study conducted by Bridges went on to elaborate that test completion speed (independent of other factors) did not relate to performance, stating that:

> "Student performance could not be predicted by relative order of test completion or by the time required to complete the test."
>
> (Bridges, 1985. p.34)

Bridges concludes that achievement tests are designed to measure how much students have learned in a specific course of study, not how quickly they can impart this information. He argues that as test-completion speed is not a major objective of most subjects that sufficient time should be allocated for all students to finish comfortably.

Several other studies have reported more positive findings concerning the psychometric properties of speed-power tests. Lin, (1986) reported that a speed factor can represent ability (power), as speed of performance can in some cases be related to the student's knowledge of the subject matter. However, it is clear that knowledgeable students often do not finish examinations ahead of less knowledgeable students, therefore the current researchers discount the validity of this evidence as being generally applicable. Further, it is expected that speed and power would correlate most strongly in tests of factual recall rather than in tests of higher order application and synthesis of knowledge as required by essay type responses which typify tertiary examinations.

From a more general perspective, Davis, Kaiser & Boone (1987), in their study investigating the speededness of the Academic Assessment Placement Program (AAPP), concluded that increasing *or* decreasing time limits as much as 100 or 50 percent, will not seriously effect any of the psychometric properties of the test or significantly change *most students* scores. However, academics and others must be aware that increasing the speed of tests significantly reduces the validity of the scores of students with certain types of disabilities (Willingham, Ragosta, Bennett, Braun, Rock & Powers, 1998). Therefore, it seems sensible to promote unspeeded examinations for all students and rest assured that increasing time for disabled students will not disadvantage other students if they have been given adequate time to demonstrate acquired knowledge in the first place.

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This position is supported by the work of Bennett, Rock & Kaplan (1988), concerning measures of reliability for the American Scholastic Aptitude Test (SAT) - a university entrance examination. As part of this study, students with disabilities were given special examination arrangements which included additional time. The researchers found that for both disabled and non-disabled groups, there were comparable reliability coefficients across all groups. These findings suggest that the scores obtained from the Scholastic Aptitude Test are likely to represent a typical level of performance for students from both disabled (with extra time or other provisions) and non disabled groups.

Research has also indicated that speeded examinations may also be culturally insensitive. Immerman (cited in Davis, Kaiser & Boone, 1987) studied the effects of time constraints on American Indians. Immerman used the Stanford Diagnostic Reading Test (SDRT) and compared test scores of subjects with and without time constraints. The results indicated that the experimental group with no time constraints scored higher than the control group with time constraints. One of Immerman's recommendations was the elimination of speeded examinations or "time stress" as time stress is actively avoided in many Indian cultures. Therefore, the introduction of such a factor for students who were not used to performing at speed is assumed to have a negative effect on the student's ability to demonstrate acquired knowledge. In Australia, this could have significant implications for students whose cultural background is one in which speed of response is not considered to be an indicator of validity or quality of response.

The available literature concerning the effects of speeded examinations on students with disabilities strongly supports the view that this group of students is very much disadvantaged, and that speededness forms a significant source of potential bias. As suggested by Munger and Loyd (1991), due to the influence of a student's disability, power tests may be more of a speed test resulting in a test becoming both a speed and a power test for students with disabilities. This clearly places students with disabilities at a distinct disadvantage within the speeded examination situation. It is also argued that an examinee's knowledge and skills can not be fully demonstrated under timed testing conditions and that the obtained score will not accurately reflect the examinee's level of achievement but, rather, the extent of their disability.

Ragosta and Wendler (1992) conducted a study of eligibility issues and comparable time limits for students with disabilities undertaking the Scholastic Aptitude Test in the United States. Disability groups included in the research were: hearing impaired, learning disabled, physically disabled and visually impaired. They concluded that:

> "double the amount of testing time appears to be a generally appropriate time limit across most disability groups. Blind examinees using braille or cassette tests, however, need considerably more time than those with other disabilities about 2 2/3 the usual time."
>
> (Ragosta & Wendler, 1992 pp. 5-6)

Research findings of a study conducted by Centra (cited in Munger & Loyd 1991), support the argument of unspeeded examinations for students with disabilities. Centra compared the scores of disabled and non-disabled examinees on both timed and untimed administrations of the Scholastic Aptitude Test. The results indicated that the performance of students with disabilities improved with extended time, with the increase in scores being greater than that observed for non-disabled examinees who were also given additional time. Centra concluded that providing additional time to students with disabilities may be important in reducing the effects of the examinees disability on test performance and in creating a comparable task.

Centra's findings are also supported by the work of Packer (cited in Munger & Loyd, 1991). Packer studied the amount of time students with disabilities took to complete the Scholastic Aptitude Test and compared their times with a group of non-disabled students. Packer found that students with disabilities took considerably more time to complete the test than the control group. Of further interest, Packer also noted that performance on the Scholastic Aptitude Test varied depending on the type of disability, that is, students with a hearing or learning disability were not likely to perform as well as other students on the verbal component of the test.

It appears that although unspeeded examinations greatly benefit the majority of students with disabilities, some disability groups, for example, students with a hearing or learning disability, may not benefit comparably. For these two groups of students, unspeeded examinations may not increase test scores to the same degree due to the inherent language difficulties often associated with both learning and hearing disabilities. Therefore, tests that require examinees to read large amounts of text are likely to disadvantage students with hearing and learning disabilities more significantly than students with visual or physical disabilities. Solutions other than extended time, such as the use of a combination of oral and manual communication for deaf students, and readers and scribes or oral examinations for learning disabled students may be more appropriate.

In summary then, the literature examined leads to a need for examiners to recognise the effects of speed on examination performance for all students and most particularly for students with disabilities. Further, examiners need to clearly identify what it is that they are testing and ensure that results are not contaminated by the effects of speed.

Methodology

In order to begin to investigate the issues in one NSW University, the researchers conducted a pilot study which surveyed academics across 16 faculties regarding their attitudes towards the use of time constraints in examinations. Where possible, subjects were selected from a list of examiners who were holding co-ordinated university exams. Criteria for selection was determined by variation in the number of students attending subjects in order to obtain a cross-section of information from small and large cohorts. Where no co-ordinated examination was being conducted subjects were randomly selected. In three cases the data obtained under these conditions was disregarded in the overall study because the respondents did not set examinations. Within each faculty three surveys were sent and 1-2 faculty members responded from within each faculty. All responses were treated completely confidentially with one research assistant being the only individual who knew who the respondents were.

The overall response to the survey was 53%. Subjects either answered the survey by completing it in writing, or answered questions to the research assistant over the phone. In such cases the subject had a copy of the questions and the research assistant recorded their answers and read them back to confirm the accuracy of their answers.

A preliminary analysis of scores was undertaken which allowed the researchers to look at overall results and make several recommendations. However, it is clear that further analysis of results of within and between subject scores needs to take place and further research which elaborates on certain aspects of this study also needs to follow.

Results

Results of the pilot study are examined by analysing each of the 14 questions.

Questions 1 -3

1. How many students are you teaching this semester?
2. How many of these students have a disability? and
3. What disabilities do you believe they have?

The above three questions were asked firstly in order to ascertain whether academics acknowledged the same set of disabilities which disability liaison offices generally serve and secondly to ascertain whether the number of students with disabilities nominated by academics correlated with the percentages actually enroled and identified at the university, or expected to exist , in a "normal" university population. In other words, the researchers wanted to find out whether academics know what constitutes a disability and how many students with disabilities they thought they had studying in their subjects.

With regard to academics' statements about the kinds of disabilities which existed, a small number asked what the researchers meant by "disability"? The standard response given by the research assistant was, "Whatever you would regard as a disability in your situation."

Results are presented in the following table.

No of Students	No of SWD	Type of Disability
30	0	-
30	0	-
40	0	-
40	0	-
50	0	-
50	0	-
60	2	CFS, Acute RSI
70	0	-
70	3	Temporary, Hearing, Sight
80	2	Temporary
90	0	-
100	0	Visual, Learning, Hearing
100	5	Hearing, Sight, Use of Hands and Legs
100	no idea	-
160	2	Colour Blindness
160	15-20	Sight, Learning
160	18	Hearing, Sight, Learning Deficits, Short term, Psychological and Social Deficits
190	2	Cerebral Palsy
220	no idea	Hearing, Sight, Muscular, Spinal, Limb Deformities
230	1	Sight
240	96	Self-esteem, Physical, Insufficient Academic Skills/Experience
300	150	English Comprehension
300-400	0	Sight, Physical
400	300	Fundamental Maths

The teaching load of individual academics varied from 30 to 400 students and the average student load was 147. The number of students with disabilities ranged considerably. For example, one respondent with a teaching load of 300-400 students indicated that there were no students with disabilities, whereas another respondent with a teaching load of 400 students indicated that 300 students had a disability.

The types of disabilities and number of students are also presented in the following table.

Type of Disability	Number	Percentage
Physical	8	26.6
Hearing	3	10.0
Visual	8	26.6
Learning	1	3.3
Chronic Medical Condition	1	3.3
Hand/arm impairment	1	3.3
Language Difficulties	4	13.3
Psychosocial Difficulties	2	6.6
Temporary Disabilities	2	6.6
Psychiatric	0	0

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From the above table, the most commonly reported disabilities were both physical and visual disabilities (26.6%).

It is likely that academics were most aware of physical or visual disabilities either because they were clearly visible or because students needed to disclose them in order to negotiate reasonable accommodations with lecturers throughout their participation in the course. Based on data held within the university it is equally likely that these were *not* the most common forms of disability experienced by students participating in these subjects.

4. What action do you or the student(s) take to cater for the disability(ies)?

Overall, 58.4% of respondents indicated that they adopted various methods to accommodate students with disabilities. Accommodations included: individual examination arrangements, modifications to teaching strategies, individual tuition and referral to relevant support services.

The remaining 41.6 % of respondents indicated that they or the student took no action to cater for the disability. In relation to assessment, this could be because no action was required in an examination. On the other hand it could be because either students or academics are unaware of issues facing students with disabilities undertaking examinations and therefore this situation requires further investigation.

5. In your subject, how do you determine what will be assessed?

Responses were placed into three categories:

1. an examination of subject objectives and content
2. team meetings and discussion with colleagues and
3. referring to past assessment procedures and experience.

The following table provides the number and percentage of responses in each of the three categories.

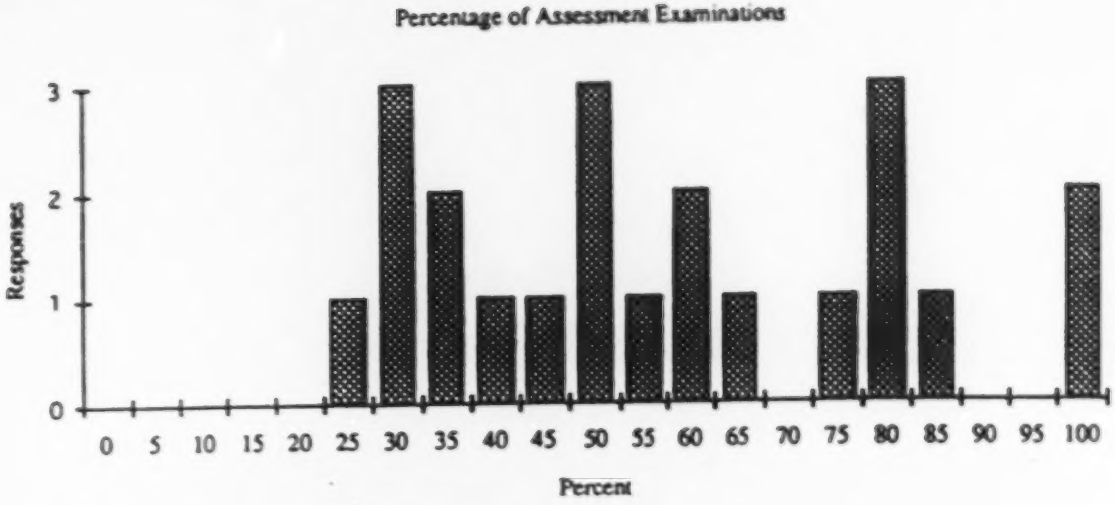
Method of Determining Assessment	Number	Percentage (%)
Subject objectives & content	17	77.3
Team Meetings	4	18
Past assessment procedures & experience	1	4.5

The vast majority of respondents - 77.3%, indicated that they based their decision concerning assessment on the content and objectives of the subject. This would appear to indicate that academics are for the most part attempting to test the acquisition of specific knowledge and skills learned as a result of participation in the course rather than speed of written response.

22.7% indicated that they based their decisions on team meetings and past procedures and experiences.

6. What percentage of your course is made up of actual examinations?

The following graph illustrates the percentage of assessment reliant on examinations.



Of the 22 responses, 14 indicated that exams accounted for over 50% of their course assessment. In all cases, examinations counted for at least 25% of assessment.

Given the known effects of speed on examination performance, this has considerable implications for the need of academics to understand and give due consideration to these effects

7. In a typical examination set by you, which of the following question types did you use?

The following table summarises the findings.

Type of Examination	Percentage (%)
Essay	31
Short Answer	15
Multiple Choice	8
Combination of the Above	28
Other	18

A majority of respondents 59% reported using essay based examinations or a combination of essay, short answer and multiple choice.

Given variation in length of answers, handwriting speeds and time taken to write thoughtfully of non-disabled students, it is clear that such a strong emphasis on essay writing under examination conditions in these subjects would have profound implications for students with certain types of disabilities.

8. How much time was allocated for the examination described above?

The time allocated for examinations varied from one to eight hours. The following table provides the percentage breakdown.

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Time	Percentage (%)
1 hour	4.5
1 1/2 hours	9
2 hours	32
3 hours	50
8 hours (9 - 5 take home)	4.5

A majority of respondents reported allocating at least 3 hours for the examination. However, this needs to be examined in relation to the amount of work required in each examination and comparisons made. For example, One examination which was scheduled for 1.5 hrs, required students to complete one essay of 300 words, 30 short answer questions (less than one paragraph) and 30 multiple choice questions, while another scheduled for 3 hrs required the same amount of work. Surprisingly the examiner of the 1.5 hr paper reported that all students complete the paper while the examiner of the 3hr paper indicated that 20% did not.

Another example requested the students to complete 4 essays, 40 short answer questions and 10 multiple choice questions in a period of only 2hrs. This would seem an excessive amount to have to write in two hours. This examiner reported that 80% of the assessment for the subject was by examination.

Clearly some kind of formula based on the amount of thoughtful writing students are being asked to generate is needed in order to determine appropriate amounts of time to be set for examinations measuring achievement.

9. On what do you base your decision for the allocation of time?

40% of respondents indicated that they based their decision concerning the allocation of time on convention or past experiences.

For example:

> *" conventional 3 hours, I know the amount students can do and allocate time accordingly"*
>
> *" traditional - all maths exams"*
>
> *" past experience - consistency with other subjects"*

25% of respondents reported basing their decision on common sense or on a very rough estimate of what seems appropriate. For example:

> *" sufficient time for each part allowing 45 minutes per question."*
>
> *" the time it takes to do it all adequately."*
>
> *" how much time you need to think, structure and write a few pages, numbers of questions normally asked, common sense, enough time for a quality answer."*

20% of respondents reported that they based their decision about the allocation of time on the time it would take a particular student group to answer. For example:

> *" that a really good student will finish it in 1.25 hours"*
>
> *" more than enough time to do the paper - for a reasonable student 1 hour would be plenty of time."*
>
> *" comfortable maximum for most people."*

The remaining 15% of respondents indicated various other reasons as the basis for their decision concerning the allocation of time. One of these indicated that time was determined through discussion with student representatives.

10. Did all your students complete the last question on the examination paper?

65% of respondents indicated that all students completed the examination.
35% of respondents indicated that not all students completed the examination.

11. Do you think some students would have preferred more time to complete the examination?

65% of respondents did not think students would have preferred additional examination time.
35% of respondents did think students would have preferred additional time.

12. Do you have particular reasons for limiting the time set for examinations?

Overall, 94.5% of respondents indicated that they did have particular reasons for limiting the length of examinations. The reasons were grouped into 5 main categories:

1. practicality
2. as a method of assessing knowledge
3. external supervisors
4. equity and
5. other reasons.

The following table is a summary of the findings:

Reason for Limiting Exam Time	Percentage (%)
Practicality	39
As a Method of Testing Knowledge	22
External Supervisors	17
Equity	11
Other	5.5

56% of respondents indicated that they limited examinations for practical or administrative (external supervisors) reasons and a further 22% of respondents reported limiting time in examinations as a method of testing knowledge. 11% indicated that they did this in order to be fair to *other* students.

One examiner responded in part by saying:

> *"We are rewarded for research, not fancy exams."*

others clearly related completion rates to competency:

> *"to ensure that the students understand the importance of finishing their work in time."*
>
> *"....have to limit time because if students don't know their stuff they change their answers and get them wrong."*
>
> *"those who don't complete it haven't done the work. Those who've worked and know it, complete it."*

"It's important for students to finish the task in a limited time. A well prepared student should finish in 3 hrs. Time limits give you some idea of who is prepared and who is not."

13. If a student requested extra time to complete an examination, what would be your response?

68.4% of respondents reported that they were prepared to give students extra time for examinations if they were given prior notice or if it was for an appropriate reason. Several indicated that the reason for extension of time would have to be due to clearly extenuating circumstances. Comments were also made about fairness to other students. Examples of responses included the following:

" why? then depending on the answer I would consider extra time but it would have to be a strong reason"

" this would have to be negotiated in advance"

" it would depend on their reason, we give extra time for students with disabilities, we have even allowed students in subject x to do the 3 essays in 3 sessions"

" I'd ask if they had a disability which necessitated some [extra time], I would consider the request, would need to consider/ensure fairness for all students."

15.8% of respondents indicated that they would refer the student to Student Services or the Disabilities Liaison Officer and 15.8% of respondents indicated that they would not give a student additional time. Examples of "No" responses included the following:

" No, there are no more hours to give - 3 hours is total"

" Better planning needed by students - this explained in lectures".

14. Some Examiners allocate unrestricted time for all students in their examinations. What is your response to this?

50% of respondents indicated that they would not be able to provide unrestricted time for examinations. Responses included:

" totally impractical, better to set take home papers if one wants to do this, but even here one had to be strict with deadlines or more conscientious students are disadvantaged".

"Definitely not - some students who just don't know it could sit there forever, unrealistic, in the real world they want their problem solved soon - within a reasonable time frame, therefore they must know the work and be able to complete it"

"Unfortunately I would not allow that to occur, external time constraints and external supervisors, system structure is impractical, no supervisors, interrupt other exam sessions".

"An element of a successful academic experience is the ability to organise and work to deadlines. Exams with time-limits imperfectly reflect professional realities and so examine this ability albeit indirectly. Besides time-limits make busy examination schedules possible."

"It depends on the subject. With large classes it creates logistical problems. If all exams were open ended we would not get through the exams in the weeks allocated now for examinations. Also with essays- the more time given the longer the essays the more marking there is unless you put a word limit on the essays with classes of 100-500 that puts more pressure on staff who only have a short period to mark, check and collate results."

30% of respondents indicated that they were uncertain as to how unrestricted examinations could be implemented. For example:

> *"For good learning process you need limits, if you give them open topic/unrestricted time for an exam what format would it be? Could the students look for the answers? How would you do it? I don't really know what that means - meals provided?"*

> *" It depends on the type of exam, take home exams can take 48 hours or 5 hours sometime, in some situations it would be appropriate"*

Finally, 20% of respondents were supportive of unrestricted examinations. Examples of responses included:

> *" If that's how people want to organise it then I think it's a good idea. I think it becomes a matter of timetabling."*

> *" No objection"*

> *" That's what I do except I don't do it in any exam setting, but based on a realistic interaction, I believe exams are not a true indicator".*

Such statements indicate that at least some academics are open to the suggestion of reducing the speededness of examinations in order to enable all students to finish comfortably.

Summary of Findings

In summary, the results indicate that some academic staff are uncertain regarding what constitutes a disability. The majority of academics who use examinations choose to use them as the principle method of assessment and time limits for examinations are determined by convention or past experiences rather than by formula. In 65% of cases academics reported that all students finished the last question. However, there are vast differences in the amount of work students are asked to complete within comparable timeframes. The findings also indicate that in a large percentage of cases (35%) some students did not complete examinations in the time allocated and that these students would prefer more time. While many academics indicated a willingness to ensure that all students had adequate time to finish, some were unsure of the logistics of such arrangements. Of greatest concern is the finding that a number of academics believe that there is a significant relationship between speed and quality of response.

Discussion

The purpose of this research project was to investigate through the literature, the relationship between examination speededness and test performance for both students with disabilities and the general student population and then to analyse results of a survey of academics' decision-making regarding timing of examinations and students with disabilities, in the light of the literature.

The pilot study undertaken by the researchers has highlighted a number of important factors, many of which require further investigation.

Firstly, this limited study has indicated that academics generally do not have a common concept of what disability means and disability in relation to assessment is clearly in need of clarification. When asked about the number of students participating in university courses who had disabilities, responses ranged from 0% - 75% and when asked what kinds of disabilities students manifested responses included colour blindness, Fundamental Mathematics disabilities and self-esteem among more conventionally regarded disabilities such as sensory, physical and learning disabilities and chronic medical conditions. Psychiatric disorders were not mentioned at all by any of the respondents. However, one subject did include psychological and social deficits which could be construed to mean psychiatric disorders.

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The data shows that respondents understand the term "disability " to mean different things and vastly different interpretations existed in relation to how many students in their subjects actually had disabilities. There is clearly a need to provide clarification of what constitutes a disability according to Commonwealth and State Laws and a further need to clarify what disadvantages such disabilities may create in an examination situation.

The numbers of students with different types of disabilities reported by academics in their subjects did not correlate with the number of students with disabilities known to be studying at the University. For a range of reasons students choose not to disclose their disabilities to academics. However, this is cause for concern if these students are required to complete examinations without due consideration of their special needs. An example of one student known to the researchers is offered.

Sandy is a female student studying in Education. She has a congenital deformity of her right hand and therefore cannot use it to write. Since childhood she has written with her left hand which is not her naturally dominant hand. Sandy is a student who has never identified herself to the Disability Liaison Office as a student with a disability and probably never will. She does not consider herself to have a disability. However, when required to write at speed for a period of up to three hours with her non-dominant hand, naturally she tires. It has never occurred to Sandy that she may be eligible for provisions such as extra time or a scribe. It has certainly never occurred to her lecturers. In a normally speeded examination she will clearly be at a disadvantage. Her generally adequate performance in moderately speeded examinations cannot offer a true indication of her knowledge and understanding of the subject.

Sandy's example is offered to demonstrate the "hidden" nature of many disabilities. Often the students do not consider themselves to have disabilities even though they would be eligible for assistance if they thought to request it. Academics might offer as a solution that if a student identifies themselves as having a disability, then they may be offered provisions. The question becomes: Should a student who normally does not consider themselves to have a disability have to "label" themselves as disabled simply to to ask for extra time, or could a more flexible arrangement exist where all students generally are given adequate time to finish their examinations?

In cases where examiners were aware of students with disabilities 41.6% indicated that they or the student took no action to cater for their disabilities. While it is possible that such disabilities did not cause a situation of disadvantage in an examination, this is unlikely for such a large group of students. It would seem that academics need access to information regarding the functional difficulties created for students as a result of disabilities and the need to become aware of ways in which these difficulties may be compensated.

With regard to the question which asked academics how they determined what should be assessed, the study indicated that 72.3% of the respondents are consciously aware of the fundamental requirement of assessment to evaluate the achievement of subject objectives. However, 26.7% made no reference to subject objectives forming the criteria for assessment of the subject.

As it is the intention of the majority of academics to assess the achievement of subject objectives there is some doubt in the researchers' minds regarding the extent to which this is able to occur through speeded examination based assessment. If course objectives specify development of the ability to write at speed for extended periods, then it is reasonable that this factor should feature significantly in an assessment task. However, if speed of response is not an inherent essential element of the task being measured, even a moderately speeded examination may introduce an irrelevant source of difficulty which contaminates results. Certainly there is an argument that in the real world, speed of performance in particular practical tasks is considered important. However, speed of performance in writing tasks over extended periods is quite a different thing. A fast or competent writer, will not necessarily be a fast or competent performer in relation to other tasks.

It would appear that the notion of assessment of achievement in a course needs to be challenged publicly and wide inservicing on how to assess, using valid practices for all students including students with disabilities is necessary. It is possible that where an academic's only conscious statement about determination of what assessment will entail relates to general discussion with colleagues and reference to past experience that these examiners may not have a thorough grasp of what should and should not be assessed. It would appear that in a substantial number of cases where examinations are set, much of what is being assessed (such as the student's ability to write at high speed under pressure for long periods of time) has nothing to do with achievement of subject objectives.

Of those who responded to the survey, a majority indicated that over 50% of their course assessment was determined through examinations. This being the case, it is essential that examination practices in relation to the determination of speed of examinations be constantly reviewed and justified in order to control the quality of assessment procedures. While academic staff are often given feedback on the quality of the lectures, the usefulness of reading material provided to students and the course content, it is rare that they are given feedback on the quality of their assessment procedures and the validity of these. Surely in a university setting where assessment which leads to a qualification is such a fundamental reason for a student's undertaking a course, assessment practices should be carefully monitored and any aspect of assessment (such as speed in an examination) which may jeopardize its validity should be scrutinized.

It is notable that the majority of respondents in the study reported that essay based examinations and a combination of essay, short answer and multiple choice constituted the highest percentages of examination types. With the major emphasis being on essay type questions, it is clear that examiners are intending to assess achievement rather than speed. Constructing an essay type answer requires thought and application of knowledge, not simply regurgitation of facts at speed. Additionally if students are expected to write large amounts as they are in the case of essay type examinations the variable of handwriting speed must be given consideration. Students do not all write at the same speed. Average handwriting speeds have been established for both thoughtful and mechanical writing (Whiting, 1992) and could be used to determine appropriate amounts of time to be allocated to specific thoughtful writing tasks such as essay writing.

Academics were asked the basis on which they allocated time. Some of the responses to this question were disturbing in that they indicate a lack of attention to the true issues of what is being examined and how long it actually takes an average student and/or a slow student to complete these activities. Comments made (some of which are reported in the results section) indicated that many judgements were made completely arbitrarily based on "tradition", "past experience", "convention" and "common sense". Of most concern was the information that in 35% of cases, some students did not complete their examinations and would have preferred more time.

The study indicated that 94.5% of respondents indicated that they had particular reasons for limiting the time set for examinations. 57% of responses related to administrative constraints such as the need to use external supervisors or the management of examinations during a co-ordinated examination period. It seems ironic to the current researchers that so much time, money and administration is spent getting students in to courses, teaching them, consulting with them and so on, and yet, so little is prepared to be spent on valid assessment of their achievements in a course.

It is unrealistic to believe that examiners are able to determine the correct amount of extra time required for all students with disabilities. The possible range of disabilities is extremely diverse as are the individual needs of students with disabilities. To further complicate testing procedures, how do examiners determine appropriate time limits for students with multiple disabilities. The current researchers suggest that to ensure fairness and an equitable examination system for all students, unspeeded examinations must be considered as they are an attractive, valid and reliable alternative. As stated by Davis , Kaiser and Boone

> "continuing to stare at items on a test for which one does not know the answer does not increase one's score".
> (Davis, Kaiser & Boone, 1987 p.43)

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Conclusions

The pilot research project attempted to examine current assessment practices by investigating the way academics make decisions about the speededness of examinations. It is concluded that little understanding exists in relation to the implications of speededness on test performance, especially for students with disabilities and that considerable emphasis is still placed on speeded examinations with little or no thought given to the contaminating effects of examination speededness on examination performance.

The issue of identification of students with disabilities must be clarified for and by academics both in terms of Commonwealth and State Law and in terms of the effect of certain disabilities on student performance in examinations. Academics need to be assisted to understand the nature of disability and the need for "reasonable adjustment" to enable students to demonstrate knowledge, skills and understandings to examiners.

In terms of effecting some change in the attitudes of academics towards the use of extra time in examinations for students with disabilities and also in the use of unspeeded examinations generally, (if it is confirmed that this sample can be regarded as representative of academics responses in NSW universities) it would seem essential to embark on an awareness raising exercise within universities which alerts academics to the nature of disability as identified by Commonwealth and State laws and indeed the nature of disability in relation to assessment in educational institutions.

As speeded examinations make up such a substantial portion of assessment in some subjects, thought needs to be given by academics to what they are really assessing and whether speed of written response is a valid indicator of achievement in the particular area being examined. The assumption that speed of response is inextricably linked to competence in a subject needs to be challenged.

Wherever possible time constraints on examinations should be reduced. Clearly if examinations are primarily designed to allow students to demonstrate knowledge, ample time should be allocated for all students to do this. The concern that granting extended time to some students disadvantages others would diminish if all students were given adequate time in the first place.

As it may never be feasible to completely abolish time constraints in examinations, future research in this area should concentrate on establishing formulae for developing reasonable time frames for examinations based on the length of required responses (in words, paragraphs & pages). Such formulae should allow virtually all students to complete the required amount of *thoughtful writing* within the examination period. The days of writing at high speed, under pressure, regurgitating all that is known about a topic must be numbered. Particularly in cases where speed of response is not a valid determinant of achievement, students should be encouraged to write thoughtful, quality answers and should feel that they have been given adequate time to do so.

Administrative constraints govern the thinking of many academics in assessment situations particularly in relation to the speededness of examinations. Academics should be committed to *truth in assessment* and their highest priority should be the assessment of achievement of the particular objectives identified as being important and relevant in their particular subjects.

Recommendations

1. Facilitate promotion of awareness of issues related to students with disabilities among academic staff including students' rights in relation to relevant legal acts.

2. Conduct inservice training on student assessment with a specific focus on inclusive assessment for students with disabilities.

3. Think creatively of ways to reduce the time pressure on examinations. For example:

   give more time than is needed for all examinees to complete an exam (if an exam is likely to take most students 2hrs, allocate 3 hours to ensure that all students will have ample time to finish);

   negotiate in advance of the exam how much time will be allocated and ensure that all students agree that this will be a reasonable amount of time to allow them to demonstrate their knowledge;

   if extending the time is impractical, then set less work to be covered in the time allocated;

   put word limits on essays rather than time limits (This should encourage students to plan their answers more carefully and be more succinct thus benefiting the student and the marker).

4. Educate academics regarding the documented poor correlations between speed and power in examinations.

5. Educate academics regarding the introduction of irrelevant sources of difficulty and contamination of validity of results when attempting to measure the achievement of specific objectives.

6. Conduct further research into the development of formulae for determination of appropriate time-frames for examinations based on the amount of required thoughtful writing.

REFERENCES

Baxter, B. (1941). An experimental analysis of speed and level in an intelligence test. *Journal of Educational Psychology*, 32, 285-296.

Bennett, G.K. and Doppelt, J. E. (1956). Item difficulty and speed response. *Educational and Psychological Measurement*, 16, 494-496.

Bennett, R.E., Rock, D.A. and Kaplan, B.A. (1987). SAT Differential Item Performance of Nine Handicapped Groups. *Journal of Educational Measurement*, 24 (1), 41-55.

Bennett, R.E., Rock, D.A. and Kaplan, B.A. (1988). Level, Reliability, and Speededness of SAT Scores for Nine Handicapped Groups. *Special Services in the Schools*, 4 (3/4), 37-54.

Bloomers, P. and Lindquist, B.F. (1944). Rate of comprehension of reading: Its measurement and its relation to comprehension. *The Journal of Educational Psychology*, 35, (8), 449-473.

Bridges, K.R. (1985). Test completion speed: Its relationship to performance on three course-baed objective examinations. *Educational and Psychological Measurement*, 45, 29-35.

Centra, J. (1986). Handicapped student performance on the Scholastic Aptitude Test. *Journal of Learning Disabilities*, 19, 324-327.

Cronbach, L.J. and Warrington, W.G. (1951). Time limits tests: Estimating their reliability and degree of speeding. *Psychometrika*, 14, 167-188.

Davis, F.B., and Davis, C.C. (1957). *Davis Reading Test*. New York: The Psychological Corporation.

Davis, T., Kaiser, R. and Boone, J. (1987). *Speededness of the Academic Assessment Placement Program (AAPP) Reading Comprehension Test*. Nashvile Tennessee State Board of Regents.

Davis, T.M., Kaiser, R., Boone, J. and McGuire, J. (1988). *An Investigation of Speededness in a Placement Test: A Call for Local Standards*. Research Report (143). Nashville: Tennesse State Board of Regents.

Davidson, W.M.N. and Carroll, J.B. (1945). Speed in level components in time limit scores: A factor analysis. *Educational and Psychological Measurement*, 5, 411-427.

Dixon, J. and Stratta, L. (1987). *Reading and Responding with Understanding. Part 1: An Analysis of GCSE Exemplar Materials (1986-1987) for Understanding and Response*. Eastleigh, UK: Oxford University.

Gulliksen, H. (1950). *Theory of Mental Test*. New York: John Wiley and Sons.

Helmstadtler, G.C., and Ortmeyer, D.H. (1953). Some Techniques for determining the relative magnitude for speed and power components of a test. *Educational and Psychological Measurement*, 13 (2), 208-287.

Immerman, M.A. (1980). *The Effects of Eliminating Time Restraints on a Standardised Test With American Indian Adults* (ERIC Document Reproduction Service N. ED 196 584).

Jolly, S.J., Johnson R., Jones, B. and Abalus, J. (1985). *The Effect of Test Speededness and Random Guessing on the Validity of Reading Comprehension Scores*. Paper presented at the 67th Annual Meeting of the American Educational Research Association. San Francisco, CA, April 16-20).

Lin, M.H. (1986). *The Impact of Time Limits on Test Behaviours*. Paper presented at the 67th Annual Meeting of the American Educational Research Association. San Francisco, CA, April 16-20.

Lord, F.H. (1956). A study of speed factors in tests and academic grades. *Psychometrika*, 21, 31-50.

Mayer, C.T. (1952). The factonal composition and validity of differentially speeded tests. *Psychometrika* 17, 347-352.

Munger, G.F. and Loyd, B.H. (1991). Effect of Speededness on Test Performance of Handicapped and Nonhandicapped Examinees. *Journal of Educational Research*, 85, (1), 53-57.

Myers, C.T. (1960). Introduction. *Educational and Psychological Measurement*. 20, (2), 221-222.

Packer, J. (1987). *SAT Testing Time for Students With Disabilities*. Princeton, N.J: Educational Testing Service.

Ragosta, M. and Kaplan, B.A. (1986). *A Survey of Handicapped Students Taking the Special Test Administrations of the SAT and GRE*. No. 5, Studies of Admissions Testing and Handicapped People. Princeton, N.J: Educational Testing Service.

Ragosta, M. & Wendler, C. (1992). *Eligibility issues and comparable time limits for disabled and nondisabled SAT examinees. College board report no. 92-5*. New York: College Entrance Examination Board.

Reilly, R.R., and Evans, F.R. (1974). *The Effects of Time Test Limits on Performance of Culturally Defined Groups*. Paper presented at the Annual Meeting of the American Educational Research Association. New Orleans, LA.

Rindler, S.R. (1979). Pitfalls in assessing test speededness. *Journal of Educational Measurement*, 8, (4), 275-277.

Sax, G. (1980). *Principles of Educational Measurement and Evaluation*. Belmont, CA: Wadsworth.

Swineford, F. (1956). *Technical Manual For Users of Test Analyses*. (Statistical Repon 56-42). Princeton, NJ: Educational Testing Service.

Weaver, S. (1993). *The validity of the use of extended and unlimited testing for post-secondary students with learning disabilities*. Doctoral Dissertation. University of Toronto.

Wesman, A.G. (1960). Some effects of speed in test use. *Educational and Psychological Measurement*. 20, 267-274.

Whiting, P.R. (in press). *The effects of using a writer in examinations on learning disabled and non-learning disabled senior students: a pilot study*. Evelyn McCloughan Children's Centre, University of Sydney Sydney.

Willingham, W.W., Ragosta, M., Bennett, R.E., Braun, G., Rock D.A. & Powers, D.E. (1988). *Testing handicapped people*. Boston: Allyn & Bacon, Inc.

Woods, P.A., Sedlack, W.E. and Boyer, S.P., (1990). *Learning Disability Programs in Large Universities*. NASPA Journal. 27 (3), 248-256.

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